REMARKS

An Excess Claim Fee is submitted herewith to cover the cost of three excess total claims. A Petition and Fee for One Month Extension of Time is submitted herewith.

Claims 1-25 are all the claims presently pending in the application. Claims 1, 3, and 5 have been amended to more particularly define the invention. Claims 23-25 have been added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-6, 8-16 and 19-20 stand rejected under 35 U.S.C. § 102(b) as being allegedly unpatentable over Taylor et al. (Adaptive Image Compression for Wireless Multimedia Communication, IEEE International Conference on Communications, Vol. 6, 11-14, June 2001, pp1925-1929). Claims 7 and 17 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Taylor in view of Kuniba (US Patent 6,697,529).

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Taylor in view of Yovanof et al. (US Patent 5,677,689).

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

An exemplary aspect of the claimed invention (e.g., as recited in claim 1) is directed to an image compression method for compressing image data which includes storing compression characteristics data indicating compression characteristics of plural images having plural complexities, acquiring an initial compression parameter, performing a compression process on image data of an image to be compressed based on the initial compression parameter, acquiring a corrective compression parameter, and performing another compression process on image data of an image to be compressed based on the corrective compression parameter. The compression characteristics indicate a relationship between a bit rate, which is a ratio between data volume and the number of pixels of image data, and a compression parameter associated with image quality and compression rate, and acquiring an initial compression parameter acquires the initial compression parameter based

on compression characteristics data of an average image and a target bit rate.

Importantly, acquiring the corrective compression parameter includes acquiring from among the plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of the image to be compressed and the target bit rate (Application at Figures 3 and 4; page 13, line 10-page 15, line 4).

A conventional method includes acquiring image data having a predetermined data volume based on a data volume acquired through a pre-compression process on image data in a sampling area set in a certain position on a screen. However, this inevitably results in an increased processing time (Application a page 3, line 24-page 4, line 6).

In the claimed invention, on the other hand, acquiring the corrective compression parameter includes acquiring from among the plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of the image to be compressed and the target bit rate (Application at Figures 3 and 4; page 13, line 10-page 15, line 4). This may help to allow a compression process to be performed at a high speed (Application at page 15, lines 6-11).

II. THE ALLEGED PRIOR ART REFERENCES

A. Taylor

The Examiner alleges that Taylor anticipates the invention of claims 1-6, 8-16 and 19-22. Applicant submits, however, that there are features of the claimed invention that are not taught or suggested by Taylor.

Taylor discloses the results of varying some image compression parameters on energy dissipation, bandwidth required, and quality of image received (Taylor at Abstract).

However, Applicant submits that Taylor does not teach or suggest "*wherein said acquiring said corrective compression parameter includes: acquiring from among said plural complexities, a complexity of the image to be compressed based on a bit rate of*

compressed image data acquired in performing said compression process, and said initial compression parameter; and acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of said image to be compressed and the target bit rate", as recited, for example, in claim 1 (Application at Figures 3 and 4; page 13, line 10-page 15, line 4). As noted above, this may help to allow a compression process to be performed at a high speed (Application at page 15, lines 6-11).

Applicant would AGAIN point out that in an exemplary aspect of the claimed invention (e.g., as illustrated in Figure 4), a complexity (e.g., the function $Q=f_s(R)$) of the image to be compressed can be acquired based on the initial compression parameter (Q_1) and the bit rate (R_1) of image data generated using the initial compression parameter (Q_1), and then the corrective compression parameter (e.g., Q_2) may be acquired based on that complexity and the target bit rate (Rs) (e.g., determining the Q-value given by the function $Q=f_s(R)$ for the target bit rate (Rs)).

Clearly, this feature is not taught or suggested by Taylor. Indeed, the Examiner attempts to rely on Sections II and III in Taylor to support his position that Taylor teaches this feature. The Examiner is incorrect.

Indeed, the Examiner states simply that

> "[w]hen the selection is made for the optimal compression parameter a search is made for the quantization value that yields acceptable image quality, therefore, a complexity, which is based on the addition of the bits per pixel for the entire image and the compression parameter used, is determined and based on these results the optimal compression parameter is selected" (Office Action at page 4).

First, Applicant would point out that the Examiner is attempting to equate the "quantization value" in Taylor with the "complexity" of the image in the claimed invention. This is completely unreasonable. Indeed, in an exemplary aspect of the claimed invention, the "complexity" of an image may be defined by a relationship between a compression parameter and a bit rate of image data generated by using said compression parameter (e.g., see Application at Figure 4).

Further, even assuming (arguendo) that the quantization value in Taylor may be

somehow confused with the "complexity" of the claimed invention, Applicant would point out that nowhere in Sections II or III or anywhere else, does Taylor teach or suggest storing compression characteristics data indicating compression characteristics of plural images having plural complexities, as in the claimed invention. Moreover, Taylor certainly does not teach or suggest acquiring a corrective compression parameter including acquiring from among the plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter.

Therefore, Taylor clearly does not teach or suggest the claimed invention. Indeed, Applicant respectfully submits that Taylor is completely unrelated to the claimed invention.

Therefore, Applicant submits that there are features of the claimed invention that are not taught or suggested by Taylor. Therefore, the Examiner is respectfully requested to withdraw this rejection.

B. Kuniba and Yovanof

The Examiner alleges that Taylor would have been combined with Kuniba to form the invention of claims 7 and 17, and with Yovanof to form the invention of claim 18. Applicant submits, however, that these alleged references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention.

Kuniba discloses a data compression method which allegedly obtains a target scale factor NSF through a single trial (Kuniba at col. 2, lines 35-40).

Yovanof discloses a method for compressing an image which includes estimating a new Q-factor using a mathematical model based on an activity metric (A) of test images for a predetermined Q-factor value.' (Yovanof at Figure 6).

However, Applicant respectfully submits that these alleged references are unrelated. Indeed, no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

In fact, Applicant submits that the references provide no motivation or suggestion to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicant respectfully submits that one of

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ordinary skill in the art would not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Taylor, nor Kuniba, nor Yovanof, nor any alleged combination teaches or suggests acquiring a corrective compression parameter including "*wherein said acquiring said corrective compression parameter includes: acquiring from among said plural complexities, a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing said compression process, and said initial compression parameter; and acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of said image to be compressed and the target bit rate*", as recited, for example, in claim 1 (Application at Figures 3 and 4; page 13, line 10-page 15, line 4).As noted above, this may help to allow a compression process to be performed at a high speed (Application at page 15, lines 6-11).as recited, or example, in claim 15 (Application at Figures 1, 3; page 11, lines 4-15).

Clearly, this novel feature is not taught or suggested by Kuniba or Yovanof. Indeed, as noted above, Kuniba discloses a data compression method which allegedly obtains a target scale factor NSF through a single trial (Kuniba at col. 2, lines 35-40). Specifically, Kuniba deals with a quantization method (Kuniba at col. 12, lines 9-43), and **has nothing to do with acquiring a corrective compression parameter (e.g., Q-value).**

Therefore, Kuniba clearly does not teach or suggest acquiring the corrective compression parameter which includes acquiring from among the plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of the image to be compressed and the target bit rate, as in the claimed invention.

Likewise, Yovanof does not teach or suggest this feature of the claimed invention.

In fact, Yovanof simply teaches performing a calibration including calculating an activity metric (A) for test images at a predetermined Q-factor value, plotting the sample points (Q, A) and fitting the points with a mathematical model (Yovanof at col. 5, lines 28-67). Then Yovanof calculates (see Equation 2) an activity metric (A) that is based on N_B

(number of blocks in the original image), Q_{init} (Q-factor used during first pass), q_{ij} (the unquantized DCT coefficient) and Q_{ij} (the (i,j)th entry in the Q-table) (Yovanof at col. 6, lines 20-59).

That is, nowhere does Yovanof teach or suggest acquiring the complexity of the image to be compressed (e.g., acquiring the function $Q=f_x(R)$ for the image to be compressed). Therefore, like Kuniba, Yovanof clearly does not teach or suggest acquiring the corrective compression parameter which includes acquiring from among the plural complexities a complexity of the image to be compressed based on a bit rate of compressed image data acquired in performing the compression process, and the initial compression parameter, and acquiring from the compression characteristics data the corrective compression parameter based on the acquired complexity of the image to be compressed and the target bit rate, as in the claimed invention.

Thus, Kuniba and Yovanof are unrelated to the claimed invention and do not make up for the deficiencies of Taylor.

Therefore, Applicant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention. Therefore, Applicant respectfully request that the Examiner withdraw this rejection.

III. NEW CLAIMS

Applicant respectfully submits that Taylor clearly does not teach or suggest the features of the newly added claims 23-25.

Indeed, with regard to the algorithm shown in Fig. 9, Taylor describes that "for the required image quality (PSNR), and beginning with the largest VBS value (curr_VBS = 8), the algorithm identifies the quantization level (curr_QL) and compression ratio (curr_CR) used to satisfy the image quality constraint by performing a lookup in the image quality parameters table" (emphasis added; the tenth to sixth line from the bottom of right column of page 1928). Taylor also describes that "if choosing the next smallest VBS decreases the overall energy consumption without violating latency or bandwidth constraints, then the algorithm decrements the VBS. The process is repeated till the optimal VBS (VBS) and quantization level (QL) parameters are identified" (lines 4 to 9 in the left column of page

1929).

From these descriptions, it is clear that Taylor is merely performing the lookup in the image quality parameter table, but does not compress an image until the optimal VBS (VBS) and the quantization level (QL) are identified. To the contrary, new claim 23 (and similarly in claims 24 and 25) recites that "if a bit rate of the compressed image data of the image to be compressed is larger than the target bit rate, the other compression process is performed". Thus, Taylor clearly does not teach or suggest the features of the newly added claims 23-25.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-25, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 2/25/08

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing was filed by facsimile with the United States Patent and Trademark Office, Examiner Jose Torres, Group Art Unit # 2112 at fax number (571) 273-8300 this 25th day of February, 2008.

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